

SEQUENCE LISTING

<110> Bayer BioScience N.V.
 Greet, Vanderkimen
 Gerben, Van Eldik
 Frank, Meulewaeter

<120> Corn root preferential promoters and uses thereof

<130> 021565-119

<150> US 60/399383
 <151> 2002-07-31

<160> 32

<170> PatentIn version 3.0

<210> 1
 <211> 378
 <212> DNA
 <213> Zea mays

<220>
 <221> misc_feature
 <222> (1)..(338)
 <223> promoter

<220>
 <221> misc_feature
 <222> (339)..(370)
 <223> 5' UTR

<400> 1		
tactacagat aacacgacag ttaacgagcg ggtatgggtt gttttccttg agcactgtt	60	
ttctcttagaa tctctgaatc tctctctgtc ttgatgacac cgagcggaaa tagcagttgg	120	
aagagggtat tggcatttcag cgcgcgtatcc aacccaagtg gttccacaa cgtgaacctc	180	
atgcagctta aaatacagcc agttgtgatc catctgccac agctgttct acctcagatg	240	
tgctcacacag tgttattacct gtttctacact cgcatatgt ctacacagtt gcttatgact	300	
gcctataaaa tggccggat cggtgaggct gctggaacca aggagagaga gcatatatat	360	
ccaccgatcc atggcatg	378	

<210> 2
 <211> 1236
 <212> DNA
 <213> Zea mays

<220>
 <221> misc_feature

<222> (11)..(1196)

<223> promoter

<220>

<221> misc_feature

<222> (1197)..(1228)

<223> 5' UTR

<400> 2

cgggatcccg gctttctgca ctggacgtag tgtactttat acttggaaact tgtataaatt	60
tgtgtctttt atactccctc agtttgaat atagttcttt ctagcctctt ttttccgtc	120
cacactcatt tgaatgataa taaatataga tatacataca aactatattc ataggttaat	180
taataaatgt atatttagtc taaaatgaaa tatattttac ccatcgattt ccttatgcat	240
gaaatgttga tctacttgta tcatggaaaa atactatgac gttgttgtac cagaccgcac	300
ctaaatcaaa ctgttttgcag agatggccat tctattattt tagatttgt atacgtacga	360
tgtacttttt tatccataaa ataccgtacc attatgatat ggatatctt atgagaggga	420
ctcattatct ctctctatata atataaacac ctatataatca aacaggcatc aagaaaaata	480
gatgattttt ttttctgaag tagagtgaca gaagcagctg aagtgtgagt cttttgttt	540
caatttata atgtgtaaag aaaatgacgc caatgaaata tttgtctggg ctgacgttt	600
gtttggtaa agccaatttt gttgtatata gggggccag agcccaattt tattttgtgc	660
ccggactggc gccaaaaaaaaaa aaatccgga tagtactatt ccgctaactg tgtcacactt	720
tatctaaaat tagtcatcca aattaaagaa ctaaccttag atacaaaaaa tttaacaaag	780
tatgacaagt tagtagcaa actaaactaa agaggataac acaacagtta accgtcgacg	840
tgcgcggcct gaatttacta ctacagataa cacgacagtt aacgagcggg tatgggtgt	900
tttccttgag cactgttggtt ctctagaatc tctgaatctc tctctgtctt gatgacaccg	960
agcggaaata gcagttggaa gaggtgattt ggcttcagcg cgcgatccaa cccaaatggg	1020
ttccacaacg tgaacctcat gcagctaaa atacagccag ttgtgatcca tctgccacag	1080
ctgtttctac ctcagatgtt ctacacagtt tattacctgt ttctacctcg cagatgtgt	1140
acacagttgc ttatgactgc ctataaaatg gccggatcg gtgaggctgc tggaaaccaag	1200
gagagagagc atatataatcc accgatccat ggcattt	1236

<210> 3

<211> 592

<212> DNA

<213> Artificial

<220>

<223> cDNA of GL4 transcript

<220>

<221> misc_feature

<222> (540)..(540)

<223> n at position 540 represents any nucleotide

<400> 3

caaggagaga gagcatatat atccaccat catgatgaag ggtggcagca agaaggaagt	60
ggccgggtgcg gcggcggtgg tggccatact gctggttctg cagctgatgg cagctccacc	120
gacggccatg gccgccccgt cgccgcgcgg agccgtgccg gatggctccc tcgcccacgac	180
gccaagggtg acgatgctgt cagccacgct gtgctacacg ggggagacat gcaaatacat	240
tacctgcctc actcctgctt gctcctgtaa ctatgatgat cgtcgctgct acatcatatt	300
tactcctgct gctgcttgag gccattctgt gtacgtaat gaagccacta ctactctcac	360
acagcatgctg ccggccgacg acgtgcgtac gatatatat acgctctacc tcgtgagctt	420
ttgttcgagt gatacgtgtt tcaaggcattc catccatcca tggatgctta tgtacgtata	480
tgtgttagtc gtgtgtcagg caaccggca gcagaagggg gtgttgtatt atatatattn	540
acgtttctg gtgattaaat aataaaagggg ggcattgtgg atgtgtgcaa aa	592

<210> 4

<211> 95

<212> PRT

<213> Zea mays

<400> 4

Met Met Lys Gly Gly Ser Lys Lys Glu Val Ala Gly Ala Ala Ala Val			
1	5	10	15

Val Ala Ile Leu Leu Val Leu Gln Leu Met Ala Ala Pro Pro Thr Ala		
20	25	30

Met Ala Ala Arg Ser Pro Arg Gly Ala Val Pro Asp Gly Ser Leu Ala		
35	40	45

Thr Thr Pro Lys Val Thr Met Leu Ser Ala Thr Leu Cys Tyr Thr Gly		
50	55	60

Glu Thr Cys Lys Tyr Ile Thr Cys Leu Thr Pro Ala Cys Ser Cys Asn			
65	70	75	80

Tyr Asp Asp Arg Arg Cys Tyr Ile Ile Phe Thr Pro Ala Ala Ala		
85	90	95

<210> 5

<211> 535

<212> DNA

<213> Artificial

<220>

<223> cDNA of GL5 transcript

<220>

<221> misc_feature

<222> (82)..(82)

<223> n represents any nucleotide

<400> 5

ccaaatcagat agagagcata gtcgatcatg aagggtggca agaagaagt ggccggtgcg	60
---	----

gtggtggcca tactgcttgt tntgcagctc atggcagctc caccgacggc catggccgcc	120
---	-----

cgctcgccgc gcggagccgt gccggatggc tccctcgcca cgacgcccaa ggtgacgatg	180
---	-----

ctgtcgccca cgctgtgcta cacggggag acatgcaa at acattggctg cctcactcct	240
---	-----

gcttgctcct gcaactatag tgatcgctca tgctacatca tatttactcc tgttgcttga	300
---	-----

ggccattccg cgaagccaca actcttacaa tatgcatgctc ccggccgacg acgacgcgcg	360
--	-----

ctgcctctcg tgagttctg ttcaagtgtat gcatgttca aggcatccat ggatgcttta	420
--	-----

cgtatatgcg tattaattag ccgtgtcagg gaaccggaca gaaggggtg ttgtttata	480
---	-----

tttacgtctt ctggtgatca aataaaggaa aaatataatgt tggatgtgtg caaaa	535
---	-----

<210> 6

<211> 90

<212> PRT

<213> Zea mays

<400> 6

Met Lys Gly Gly Lys Lys Glu Val Ala Gly Ala Val Val Ala Ile Leu			
1	5	10	15

Leu Val Leu Gln Leu Met Ala Ala Pro Pro Thr Ala Met Ala Ala Arg			
20	25	30	

Ser Pro Arg Gly Ala Val Pro Asp Gly Ser Leu Ala Thr Thr Pro Lys			
35	40	45	

Val Thr Met Leu Ser Ala Thr Leu Cys Tyr Thr Gly Glu Thr Cys Lys			
50	55	60	

Tyr Ile Gly Cys Leu Thr Pro Ala Cys Ser Cys Asn Tyr Ser Asp Arg			
65	70	75	80

Leu Cys Tyr Ile Ile Phe Thr Pro Val Ala		
85	90	

<210> 7

<211> 24

<212> DNA

<213> Artificial

<220>

<223> oligonucleotide primer GVK27

<400> 7

gctgacagca tcgtcacctt gggc

24

<210> 8

<211> 25

<212> DNA

<213> Artificial

<220>

<223> oligonucleotide primer GVK28

<400> 8

gctgcagaac cagcagtatg gccac

25

<210> 9

<211> 27

<212> DNA

<213> Artificial

<220>

<223> oligonucleotide primer GVK29

<400> 9

catgccatgg atcggtggat atatatg

27

<210> 10

<211> 25

<212> DNA

<213> Artificial

<220>

<223> oligonucleotide primer GVK30

<400> 10

catgccatgg atcgactatg ctctc

25

<210> 11

<211> 164

<212> DNA

<213> Artificial

<220>

<223> cDNA of 3' end of the GL12 transcript

<220>

<221> misc_feature

<222> (45)..(45)

<223> n= any nucleotide

```

<220>
<221> misc_feature
<222> (53)..(53)
<223> n= any nucleotide

<220>
<221> misc_feature
<222> (57)..(57)
<223> n= any nucleotide

<220>
<221> misc_feature
<222> (59)..(59)
<223> n= any nucleotide

<220>
<221> misc_feature
<222> (61)..(61)
<223> n= any nucleotide

<220>
<221> misc_feature
<222> (88)..(88)
<223> n= any nucleotide

<220>
<221> misc_feature
<222> (93)..(93)
<223> n= any nucleotide

<220>
<221> misc_feature
<222> (96)..(96)
<223> n= any nucleotide

<220>
<221> misc_feature
<222> (126)..(126)
<223> n= any nucleotide

<220>
<221> misc_feature
<222> (157)..(157)
<223> n= any nucleotide

<400> 11
tttacacac atccaacatg ccccccctta ttattnaatc accanaagac gttaatntnt      60
nttattcaac accccccttt gctgcccngg tgnctnacac accactaaca catttccgtt      120
cataancatt catgctgggc cgcgctgtgc ccgacanctt aaac      164

<210> 12
<211> 8514
<212> DNA
<213> Artificial

```

<220>
<223> plasmid pTWV011

<220>
<221> misc_feature
<222> (52)..(1)
<223> LB= left T-DNA border

<220>
<221> misc_feature
<222> (318)..(58)
<223> 3' nos

<220>
<221> misc_feature
<222> (888)..(337)
<223> coding region of the bar gene

<220>
<221> misc_feature
<222> (1721)..(889)
<223> 35S promoter

<220>
<221> misc_feature
<222> (1991)..(1767)
<223> 3' end 35S

<220>
<221> misc_feature
<222> (4511)..(2003)
<223> coding region ispla

<220>
<221> misc_feature
<222> (4546)..(4515)
<223> leader sequence from the corn GL4 transcript

<220>
<221> misc_feature
<222> (5732)..(4547)
<223> corn preferential promoter GL4

<220>
<221> misc_feature
<222> (5989)..(5765)
<223> 3' end 35S

<220>
<221> misc_feature
<222> (7228)..(6001)
<223> isp2a coding region

<220>
<221> misc_feature

<222> (7263)..(7232)
 <223> leader sequence of the GL4 transcript

 <220>
 <221> misc_feature
 <222> (8449)..(7264)
 <223> corn root preferential promoter GL4

 <220>
 <221> misc_feature
 <222> (8514)..(8490)
 <223> RB=right T-DNA border

 <400> 12

cggaggata tattcaattt gaaatggctc catggcgatc gctctagagg atttcccgaa	60
tcttagtaaca tagatgacac cgcgcgcat aatttatctt agtttgcgcg ctatattttt	120
ttttctatcg cgtattaaat gtataatttc gggactctaa tcataaaaac ccatttcata	180
aataacgtca tgcattacat gtttattttt acatgcttaa cgtaattcaa cagaaatttt	240
atgataatca tcgcaagacc ggcaacagga ttcaatctta agaaacttta ttgccaatgt	300
tttgaacgat ctgcttcgga tccttagacgc gtgagatcg atctcggtga cggcaggac	360
cggacggggc ggtaccggca ggctgaagtc cagctccag aaacccacgt catgccagtt	420
ccctgtctt aagccggccg cccgcagcat gccgcgggg gcataatccga gcgcctcggt	480
catgcgcacg ctcgggtcgt tggcagcccc gatgacagcg accacgtct tgaagccctg	540
tgcctccagg gacttcagca ggtgggtgtt gacgcgtggag cccagtcccg tccgctggtg	600
gcggggggag acgtacacgg tcgactcggc cgtccagtcg taggcgttgc gtgccttcca	660
ggggcccgcg taggcgtatgc cggcgaccctc gccgtccacc tcggcgacga gccaggata	720
gcgcctccgc agacggacga ggtcgccgt ccactcctgc ggttcctgcg gctcggtacg	780
gaagttgacc gtgcttgtt cgtatgtatg gttgacgtatg gtgcagaccc cggcatgtc	840
cgcctcggtg gcacggcgga tgtcgccgg gcgtcgatctt gggccatgg ttatagagag	900
agagatagat ttatagagag agactggtga ttccagcgatg tcctctccaa atgaaatgaa	960
cttccttata tagaggaagg gtcttgcgaa ggatagtggg attgtcgatc atcccttacg	1020
tcaatggaga tgcacatca atccacttgc tttgaagacg tggttggAAC gtcttctttt	1080
tccacgatgc tcctcggtgg tgggggtcca tctttggac cactgtcggc agaggcatct	1140
tgaatgatag ccttcctttt atcgcaatga tggcatttgtt aggagccacc ttccctttct	1200
actgtcctttt cgtatggatg acagatagct gggcaatggaa atccgaggag gtttcccgaa	1260
attatcctttt gttgaaaagt ctcaatagcc ctgggtctt ctgagactgt atcttgaca	1320

ttttggagt agaccagagt gtcgtgtcc accatgttga cgaagattt cttcttgtca	1380
ttgagtcgta aaagactctg tatgaactgt tcgcgcgtc tcacggcgag ttctgttaga	1440
tcctcgattt gaatcttaga ctccatgtcat ggccttagat tcagtaggaa ctacctttt	1500
agagactcca atctctatta cttgccttg tttatgaagc aagccttcaa tcgtccatac	1560
tggaatagta cttctgtatct tgagaaatat gtcttcgtc gtgttcttga tgcaattagt	1620
cctgaatctt ttgactgtcat ctttaacctt cttggaaagg tatttgcgtc cctggagatt	1680
gttactcggg tagatcggtc tgatgagacc tgctgcgtc gaacgcggcc gcgtatacg	1740
atcgatatact tcgaattcat atgcgtatc tggatttttag tactggattt tggttttagg	1800
aatttagaaat ttatttgata gaagtatttt acaaatacaa atacatacta agggttctt	1860
atatgctcaa cacatgagcg aaaccctata ggaaccctaa ttcccttatac tggaaactac	1920
tcacacatata ttatggagaa aatagagaga gatagatttgc tagagagaga ctgggttgc	1980
cagcgtgtcc aagcttgcta gcctcagtcc acagcgaaga tcctcaccac agcggctcg	2040
gtggagcccc acaggtcgcc cttgcaggac aggggttaca ggaaggacccgtc	2100
acgttcttgc agtccaggat gatcctgtta gcgttctgc cgaaaccggc gtccacgcac	2160
gtcttggctc gtcaccgcac caccttgcgtc gtgttgcgtc aggttgcgtc ggtctgggt	2220
atcagtgggg agtcgtatgaa gtaggttagcg tcgtgttgcgtc tcacggcccg tgggtcaccg	2280
aagaagtcga agtcaccctc gatgtatgcgtc aactgtggca ctgggtcctt gtactcgatc	2340
tcctcagcac ccacccacac gaaggacacg tcgtcccgtc acacgttgcgtc	2400
cccttgcgtt agatgggtt gatctcggtt ccctccaggat ttggcaccac gatgttgcgtc	2460
ctctggtaac ccacgtggc cagggtgtat ttgtcggtca cgatggactc ctgttaccg	2520
tcgtatctcgatgtcc tacccatggat tcagcgttca tgtacaggaa cacgtatgtatgt	2580
tcgtatcttctt tcttcaggat gttcttggac tcgttgcgtc gtcgttgcgtc agcacccttgc	2640
ttagcggacc ttagtgcgtt cttaccgggtt ttaccaccgt tcaccacgtat ggttgcgtc	2700
cagttggccgtt tcttgggttt gtcggactca ccaccgtgtc acagggtggaa ggtcttttatt	2760
gtgaagttca tcttcgggtt gagcttcacgt tcgttgcgtc ttttcacgtc ttgttgcgtc	2820
ccgggtggat cgttcaggat cttcctgtatc tgcttgcgtc tgtagtgcgtc cacgttggac	2880
tgcacggaaag cctcgaagat cggctgggtcg ttgttgcgtc gtcggccgtc cttctccgtc	2940
atctcgatgtcc ggttgcgtc cttcagggttcc ttgttgcgtc ataaatttgg ggttgcgtc	3000

tctgggttgg	tgttagtcctt	agcagccacc	ctttctcg	acatctgg	tttgcgttgc	3060
acgatgatgc	tggcggtctt	ggcggagatc	tcgtcggt	tgccgttcca	gtcaccagcg	3120
atggtcatgt	tgccgttgg	gtccttgc	gcgtacttgc	cctccac	ctggttgc	3180
agcaggatcg	gcttcttgg	ggacaggt	gtgttcag	gtccttgg	cagtggatc	3240
ggcctggagt	tgaagtcgtc	catcgttgc	atggcgatc	cgttcttgc	cttctctgg	3300
tagactgg	ctggcaggat	ggtcagagcg	gtgggttct	cattggc	tttgcgttgc	3360
atggtgg	tcgtccaggat	gaaggagg	gttggcttgc	tctcgtagat	agcacccgt	3420
cccacgttgc	tgtacctcac	gttggcgttgc	agtaggcgg	actcagcacc	gttgcgttgc	3480
gtgccgtcg	tggggcg	gccccactcg	ttggccacgg	tctcgag	gttgcgttgc	3540
acggacacgc	cgaaggatgg	acccagaccg	gaccaaccg	cgttacgtt	cacgcctcg	3600
gtgttgtgt	aggaccagtt	ggtggactgg	gaggactcc	cggagtgg	caggtcctcg	3660
ttcttggaca	ggatcac	ttcgagggac	acgttacgg	atggaaagc	agccacc	3720
gggttgaagg	tcccttggc	gttggac	ggcatgtccc	tagcagc	tttgcgttgc	3780
gagtatgg	cgtccacgg	gtgggctcg	agtgggtgc	tggtaactt	ctggtagccc	3840
ttggaggcca	gggagtcgtc	ccacttcacg	gccac	tgttgcgttgc	gttgcgttgc	3900
tcctcccaca	cgtccggat	ggagtcgccc	tcgggtcgg	tgcctcg	gttgcctc	3960
ttggcttct	gggttgaac	agttggcttgc	gaggc	tcgggtctcc	gttgcgttgc	4020
ttcttggta	actctgg	cctcagctcg	tcctgtc	cctgctgg	gttgcgttgc	4080
gagtcgatct	tgaacagc	cagtccttgc	aagatcttgc	tgtcgatgt	cagggcgtcg	4140
tcggactgg	actcgatctt	gatctgcacc	agctggcc	tttcgaggt	cacggactgc	4200
ttgttgcgt	ccttctcg	gatcac	ccgtccag	cgtatgttgc	gttgcgttgc	4260
tcggacag	tgaaggtgaa	gtcacc	gtcacc	ggatcagg	gttgcgttgc	4320
atggagtgg	actcctgg	tttgcgttgc	acgagg	gttgcgttgc	gttgcgttgc	4380
atcagggtgt	tgtccctgg	tggagc	agggtc	cgttgc	gttgcgttgc	4440
aagtatgtc	ccagcagg	ctccctgtcg	atctgg	cttcga	ctgggtgg	4500
gtggcgatag	ccatggatcg	gtggatata	atgtctc	tccttgg	cacgcctc	4560
accatccc	gccat	tttat	aggc	actat	tgca	4620
aaacaggtaa	tacactgt	agcacat	aagca	actgtgg	ca	4680
aactggctgt	at	tttaag	ct	gcatgagg	tttgcgttgc	4740

cgcgctgaag cccaaatcacc tcttccaact gctattccg ctgggtgtca tcaagacaga 4800
 gagagattca gagattctag agaacaacag tgctcaagga aaacaaccca tacccgctcg 4860
 ttaactgtcg ttttatctgt agtagtaaat tcaggccgcg cacgtcgacg gttaactgtt 4920
 gtgttatcct cttagtttta gtttgctacc taacttgtca tactttgtt aatttttgt 4980
 atctaagggtt agttctttaa ttggatgac taatttaga taaagtgtga cacagttagc 5040
 ggaatagtac tatccggatt ttttttttg gcccgcgtcc gggcaacaaa tacaactgg 5100
 ctctggcccc cctatataca acaaaattgg cttcaccaa acaacacgtc agcccgac 5160
 catatttcatt tggcgtcatt ttctttacac attataaaat taaaacaaaaa agactcacac 5220
 tttagtgcgt tctgtcactc tacttcagaa aaaaaatca tctattttc ttgatgcctg 5280
 tttgatatat aggtgtttat atatatacgag agagataatg agtccctctc atcaagat 5340
 ccatatcata atggtacggt attttatgga taaaaagta catcgatgt atcacaatc 5400
 tacaataata gaatggccat ctctgaaaac agtttgattt aggtgcggc tggtaacaaca 5460
 acgtcatagt attttccat cagacaagta gatcatacatt tcatgcataa ggaatacgt 5520
 ggttaaaata tatttcattt tagactaaat atacatttat taattaacct atgaatata 5580
 tttgtatgta tatctatatt tattatcatt caaatgagtg tggacggaaa aaaagaggct 5640
 agaaaagaact atatttcaaa ctgagggagt ataaaagaca caaatttata caagttcaa 5700
 gtataaagta cactacgtcc agtgcagaaa gccggatcc ccggctagg cgcccatat 5760
 gcatgatctg gattttagta ctggatttt gttttagaa ttagaaattt tattgataga 5820
 agtattttac aaatacaaatacataactaag gtttcttatacgtcaaca catgagcgaa 5880
 accctatagg aaccctaatt cccttatctg ggaactactc acacattttt atggagaaaa 5940
 tagagagaga tagatttgta gagagagact ggtgattca gcgtgtccaa gctgtctgc 6000
 ctcaacttggc cagcaggta gcgtccacta cgtacccctt cacaccctt atcaccac- 6060
 cggatctt gtcgtgtgg tagttggagt cttgtcgat caggatctcc ttctcgaaag 6120
 cgaaggccacc gatagcggac aggtaggcac cagtggaaacc ctttggcacc tgcagccatca 6180
 ggtgaactt cctggagccg aaagcggaca gcctctcgaa ggacagggag gtggacatgt 6240
 aacccttgc tcccttcattt gtgttcaggaa acttctccctc catctccctc agggatggca 6300
 gtgggtcgaa aatctggtaa ccgaactcgg ccataccgca ccacctgtac acgtgtatgt 6360
 tctctggat cggctgcttc tccagagcct cggagatgtt cttgtatctgg gtgtccagct 6420

tctcggtgcc	ggagccaccc	tgggtccgca	ggtagtcgtt	gatctgcgg	tagtcctgcc	6480
tagcgttagcc	gtccaggggcc	tccctctgtg	ggtcggtcag	gttcttagcc	caaccctcg	6540
agttcttcat	gccccacctg	tgagcctcgg	cgttgatgtc	gttcttgaag	tccagggact	6600
tcttcagggt	accctggatc	tgcaggcact	cgttaaccctt	cttcaccacc	ttggagatgt	6660
tgtccacgtg	cagcacgtag	ccgttgcga	tcagcatctt	gtactcgtt	ttgttcagga	6720
tcacaccagc	cttggcggg	atgggtggagc	ccttgcgg	tggcacggc	acttggagga	6780
tgatcctctc	cttggaggac	acgttctgag	cagtcaagg	ggtgtccagg	taggagtcga	6840
acttgcgtc	cttgcagg	aactgctcct	tgaactgggc	ctgcacgtc	gtgttgcgtt	6900
tgttgccctc	ggtcagtggc	ttgttaaaatc	cgtggtgg	tggctccac	ttcttgcagg	6960
tcacgtatgg	ggaggacagg	ttggccttgt	cgaacatctt	gtcgatctcc	ttcaggtcct	7020
tgtatctcg	ctcgaaggag	ccagccatgc	tgaagggtat	ctccttgcgt	ttcttgcgtt	7080
tgtcgttctt	gttgcagg	aaattattca	tacgcgtt	ctcggtc	gtcagttcc	7140
actccttc	cttctcctt	ccccactcct	tggcctc	cttgcctcc	ttgaagtcc	7200
cggtgtgtt	ggtggcttc	actagtgc	tggatcggt	gatataat	ctctctc	7260
ttggttccag	cagcctcacc	gatcccggcc	attttatagg	cagtataa	caactgtgt	7320
gcacatctgc	gaggtagaaa	caggtataac	actgtgt	acatctgagg	tagaaacagc	7380
tgtggcagat	ggatcacaac	tggctgtatt	ttaagctgc	tgagggtc	gttgcggaa	7440
ccacttgggt	tggatcg	gctgaagccc	aatcacct	tccaact	gttccgctc	7500
ggtgtcatca	agacagagag	agattcagag	attctagaga	acaacagtgc	tcaaggaaaa	7560
caacccatac	ccgctcg	taactgtgt	tatctgt	agtaaattca	ggccgcgcac	7620
gtcgacg	ttactgtgt	ttatcctt	tagtttagt	tgctac	ttgtcatac	7680
tttgttaat	ttttgtatc	taaggttagt	tcttaattt	ggatgactaa	tttttagataa	7740
agtgtgacac	agttacgg	atagtactat	ccggat	tttttggcg	ccagtcggg	7800
caacaaatac	aactggc	tggccccc	atatacaaca	aaattggct	tcaccaaaca	7860
acacgtc	ccagacacat	atttcattgg	cgtcatttc	tttacacatt	ataaaattga	7920
aacaaaaga	ctcacacttc	agctgctt	gtcacttac	ttcagaaaaa	aaaatcatct	7980
attttctt	atgcctgtt	gatataatgg	tgtttatata	tatagagaga	gataatgat	8040
ccctctcatc	aagatatcca	tatcataatg	gtacggatt	ttatggataa	aaaagtaat	8100
cgtacgtatc	acaaatctac	aataatagaa	tggccatctc	tgaaaacagt	ttgat	8160

tgccgtctgg tacaacaacg tcatagtatt tttccatcg acaagtagat caacattca 8220
tgcataagga atacgatggg taaaatatat ttcatatcg actaaatata catttattaa 8280
ttaacctatg aatatagttt gtatgtatctatatttat tatcattcaa atgagtgtgg 8340
acggaaaaaa agaggctaga aagaactata tttcaaactg agggagtata aaagacacaa 8400
atttatacaa gtttcaagta taaagtacac tacgtccagt gcagaagcc gggatccccg 8460
ggcaggcctg caggtcgacg gccgagtact ggcaggatat ataccgttgt aatt 8514

<210> 13

<211> 8692

<212> DNA

<213> Artificial

<220>

<223> plasmid pTW018 T-DNA sequence

<220>

<221> misc_feature

<222> (25)..(1)

<223> LB= left border region (complement)

<220>

<221> misc_feature

<222> (318)..(58)

<223> 3' nos (complement)

<220>

<221> misc_feature

<222> (888)..(337)

<223> coding region of the bar gene (complement)

<220>

<221> misc_feature

<222> (1721)..(889)

<223> 35S promoter (complement)

<220>

<221> misc_feature

<222> (1991)..(1767)

<223> 3' 35S (complement)

<220>

<221> misc_feature

<222> (4511)..(2003)

<223> coding region ispla (complement)

<220>

<221> misc_feature

<222> (4542)..(4518)

<223> leader sequence from the corn GL5 transcript (complement)

<220>
 <221> misc_feature
 <222> (5822)..(4543)
 <223> GL5 promoter (complement)

<220>
 <221> misc_feature
 <222> (6078)..(5854)
 <223> 3' 35S (complement)

<220>
 <221> misc_feature
 <222> (7317)..(6090)
 <223> isp2a coding region (complement)

<220>
 <221> misc_feature
 <222> (7348)..(7324)
 <223> leader sequence of the corn GL5 transcript (complement)

<220>
 <221> misc_feature
 <222> (8628)..(7349)
 <223> promoter of the corn GL5 transcript (complement)

<220>
 <221> misc_feature
 <222> (8692)..(8668)
 <223> Right T-DNA border (complement)

<220>
 <221> misc_feature
 <222> (5630)..(5630)
 <223> n=any nucleotide

<220>
 <221> misc_feature
 <222> (8436)..(8436)
 <223> n=any nucleotide

<400> 13

cggcaggata tattcaattt gaaatggctc catggcgatc gctcttagagg atcttccgaa	60
tcttagtaaca tagatgacac cgcgcgcgat aattttatcct agtttgcgcg ctatattttg	120
ttttctatcg cgttattaaat gtataattgc gggactctaa tcataaaaaac ccatttcata	180
aataacgtca tgcattacat gtttattt acatgcttaa cgtaattcaa cagaatttat	240
atgataatca tcgcaagacc ggcaacagga ttcaatctta agaaacttta ttgccaatg	300
tttgaacgat ctgcttcgga tccttagacgc gtgagatcag atctcggtga cggcaggac	360
cggacggggc ggtaccggca ggctgaagtc cagctgccag aaacccacgt catgcggatt	420
cccggtcttg aagccggccg cccgcagcat gccgcgggg gcataatccgat gcgcctcgat	480

catgcgcacg ctcgggtcgt tgggcagccc gatgacagcg accacgtct tgaagccctg	540
tgcctccagg gacttcagca ggtgggtgta gagcgtggag cccagtcccg tccgctggtg	600
gcggggggag acgtacacgg tcgactcggc cgtccagtcg taggcgttgc gtgccttcca	660
ggggcccccg taggcgtatgc cgccgacacc tcggcgacga gccaggata	720
gcgcctccgc agacggacga ggtcgccgt ccactcctgc ggttcctgcg gctcggtacg	780
gaagttgacc gtgcttgtct cgatgttagt gttgacgatg gtgcagaccc cccgcattgtc	840
cgcctcggtg gcacggcgga tgtcgccgg gcgtcggtct gggtccatgg ttatagagag	900
agagatagat ttatagagag agactggtga tttcagcgtg tcctctccaa atgaaatgaa	960
cttcccttata tagaggaagg gtcttgcgaa ggatagtggg attgtgcgtc atcccttacg	1020
tcaagtggaga tgtcacatca atccacttgc tttgaagacg tggttggAAC gtcttcttt	1080
tccacgatgc tcctcgtggg tgggggtcca tctttggac cactgtcgcc agaggcatct	1140
tgaatgatag cctttccctt atcgcaatga tggcatttgt aggagccacc ttccctttct	1200
actgtccctt cgatgaagt acagatagct gggcaatgga atccgaggag gtttcccgaa	1260
attatccctt gttgaaaagt ctcaatagcc ctttgggtctt ctgagactgt atcttgaca	1320
ttttggagt agaccagagt gtcgtgtcc accatgttga cgaagatTTT cttttgtca	1380
tttagtcgtta aaagactctg tatgaactgt tcgcccgtct tcacqgcgag ttctgttaga	1440
tcctcgattt gaatctttaga ctccatgtcat ggccttagat tcagtaggaa ctaccctttt	1500
agagactcca atctcttata cttgccttgg tttatgaagc aagccttggaa tcgtccatac	1560
tggaatagta cttctgtatct tgagaaatat gtctttctct gtgttcttga tgcaattagt	1620
cctgaatctt ttgactgtcat ctttaacctt cttgggaagg tatttgatct cctggagatt	1680
gttactcggg tagatcgtct tgatgagacc tgctgcgttag gaacgcggcc gcgtatacgt	1740
atcgatatact tcgaattcat atgcgtatc tggatttttag tactggattt tggttttagg	1800
aattagaaat ttattttagata gaagtatttt acaaatacaa atacatacta agggtttctt	1860
atatgctcaa cacatgagcg aaaccctata ggaaccctaa ttcccttatac tggaaactac	1920
tcacacattt ttatggagaa aatagagaga gatagattt tagagagaga ctgggtattt	1980
cagcgtgtcc aagcttgcta gcctcagtcc acagcgaaga tcctcaccac agcggctctg	2040
gtggagccccc acaggtcgtc cttgcaggac agggtgtaca ggaaggacct gtccggacttc	2100
acgttcttga agtccagggtt gatcctgtta gcgttcttgc cgaaaccgga gtccaggacg	2160

gtcttggct gtcaccgat cacctgttag gtgaaggaga aggtacctgg ggtctggta	2220
atcagtgggg agtcgatgaa gtaggttagcg tcgtggtaact tcacggccag tgggtcaccg	2280
aagaagtgcg agtcaccctc gatgtgtcg aactgtggca ctgggtcctt gtactcgatc	2340
tcctcagcac ccacccac gaaggacacg tcgtcccagt acacgttggt ctggccgtca	2400
cccttggatgg agatgggttt gatctcgatgg ccctccaggt ttggcaccag gatgttgatc	2460
ctctggtaac ccacgtggtc cagggtgatg ttgtcggtca cgatggactc ctgcttaccg	2520
tcgatctcgatgtccac caccctggag tcagccttca tgtacaggaa cacgttagtag	2580
tcgatgttct tcttcagctt gttctggac tcggtgaca gtcggtaa agcacccttgc	2640
ttagcggacc tgtactgctt cttaccgggtt ttaccaccgt tcaccacgtt ggttagtac	2700
cagttgccga tcttgggttt gtcggactca ccaccgtcgt acagggtggaa ggtctttatt	2760
gtgaagttca tcttcgggttccac gagttcagtc tgtagtgggtt tttcacgtc cttgaaggaa	2820
ccgggtggagt cggtcagctg cttccgtatc tgcttagcggt tgtagtgcgtt cacgtggac	2880
tgcacggaaag cctcgaagat cggctggtcg ttgtagaaca gcaggccgtc cttccctcg	2940
atctcgatcg ggtaggccag cttcaggccac tccttcacgg ataaatttgg ggtcttgcc	3000
tctgggttgg ttagtgcctt agcagccacc ctcttcgtt acatctgggtt ggcgttgtcg	3060
acgatgtatgc tggcggttccat ggcggagatc tcgtcggtga tgccgttcca gtcaccagcg	3120
atgggtatgt tgccgttgggt gtccttgcgt gctgtacttgc cttccacgtt gtcgggttgc	3180
agcaggatcg gcttcttgggtt ggacaggttag gtgttcagct gtccttgggtt cagtggttgc	3240
ggcgtggagt tgaagtcgtc catcgtgttgc atggcgatgc cttcttgcctt cttctctggg	3300
taggactgggt ctggcaggat ggtcagagcg gtgggttctt cttggccctt gatgggtccg	3360
atgggtgtgc cgtccaggat gaaggaggtg gttggcttgg ttcgtatgtt agcaccgggt	3420
cccacgttgt tgcacccac gttggcggttccat aggtaggccg actcagcacc gttgtgtgg	3480
gtgccgtcgt tggggccggaa gccccactcg ttggccacgg ttcgtgggttgc ctggtagttc	3540
acggacacgc cgaaggatgg acccagaccg gaccaaccgg cttcacgtt cacccctcg	3600
gtgtgggtgtt aggaccgtt ggtggacttgg gaggactcca cggagggtggaa caggccctcg	3660
ttcttggaca ggatcacctt ttcgtggac acgttacgg atggaaaagc agccaccgtt	3720
gggttggaaagg ttccttggc gttggacagt ggcgtgtccc tagcagcctt ctcgtatgtcg	3780
gagttatgggtt cggccacgggt gtgggttcgt agtgggttgc tggtaactt ctggtagccc	3840
ttggaggccaa gggagtcgtc ccacttcacgg gcccacgttgc tctggatgggtt gtagccgttc	3900

tcctcccaca cgtccggat ggagtgcgg tcggtgtcgg tgcctcgat gatgtccctc	3960
tttgttcttctt gggtaacag gttggtcttg gaggccttct tcaggaacac ctgggtctcc	4020
tttttgttga actctgggtt cctcagctcg tcctgctgca cctgctggta gtggttctgg	4080
gagtcgatct tgAACAGCTT cagtccttg aagatcttgc tgtcgatgtg cagggcgtcg	4140
tcggactggta actcgatctt gatctgcacc agctggccct ttgcgggtt cacggactgc	4200
ttgttgtgc cttctcgga gatcacccctt ccgtccagct cgatgtggc gttctcgatcg	4260
tcggacagct tgaaggtaa gtcaccaggta gcggaggact ggatcaggcc gatccagcgg	4320
atggagtggt actcctggtg cttctggtcc acgagggtgt tagcggtctg ctggtcgttag	4380
atcagggtgt tgtccctggta tggagcgaac agggtcaggta cggtgaagtc cttgccttg	4440
aagtagtagc ccaggcaggcc ctccctgtcg atctggttgt cttcgaagc ctgggtggta	4500
gtggcgtatcg ccatggatcg actatgctct ctatctgatt ggtttggctt tgctccagca	4560
gccagccatt ttataggcag cagtcactaa actgttaggct gtagcacgtc tgacagacag	4620
gtagatggat cacaactggc tgtattttaa aaagctgcac gaggttcacg ttgtgtcg	4680
gtggtataga taaatgtca tgcagcaatg gaacaatatt ggggttgatg actgaatcgc	4740
tcaagcttagc tagccaaatc atctttcca actgctaccc gctgtgtctc ataaacacgc	4800
aggcccccg attctaaacc gcaacagtgc tcaacgaaaa ctacccttac ccgtggta	4860
attattgtgt tatcatattt aaatgctgtc attttctta caaattataa aacttggac	4920
gtgtttggta cgctgcctat acttattttt tgtattggat tctatgcgc aagagcaaaa	4980
ttccagtacc aaatgtttgt tgtattttat tggtagcgt gtacgtgcac cattctgtaa	5040
tacaacctcc gttcacagat atatgacatg ttgatTTTT taaaaactt tgaccattta	5100
tcttattcaa aagtataaaa tttaattaa gcacaaacta ctttaagtga taaaacaaac	5160
cacacaaaaa ataaatgaca actcattatt tttaataaa gacaagtgtaa taaagtTTTT	5220
taaaaaagtca gcgatgtcat atatTTATGA acggtatata tataatata tataacaccc	5280
atatcgagca ggcataaga aaaacatatc gatgatTTTT gtttccatcg aatagatgtaa	5340
caagctaaac aaatgacata ttttggttt agttttgtaa ggccattctc agtggtgagc	5400
ttcagaacat gtgacatatt tttttgttt tagttttgtaa aggccattctc cagtggtgag	5460
ctttagaaca agtgcacatct ttttggttca gttttgtaa gtcattcttta gtggtgagct	5520
tcagaacaag tgagatgaga tctttttgtt tcagtttgc taggcccatt tcacgggtga	5580

gcttcacaac aagtgacatc ttctttcag tttgttaagg ccattttcan cggtgagctt	5640
cggtaacaatg tttccatgt tgtcacacca tatttaaact aggttaattgt atatatagaa	5700
tttatctct atgaaactct accatctccc ataagctctt tctataatctc tgctttaat	5760
tgtatgtcat gtcactatgt atgatggtgt atcatcgat ataatgagta tgaaattccg	5820
ccaatcacta ggggcttaggc gcgccatatg catgatctgg attttagtac tggattttgg	5880
ttttaggaat tagaaatttt attgatagaa gtatttaca aatacaaata catactaagg	5940
gtttcttata tgctcaacac atgagcggaa ccctatagga accctaattc ccttatctgg	6000
gaactactca cacattatta tggagaaaaat agagagagat agattttag agagagactg	6060
gtgatttcag cgtgtccaag cttgctagcc tcacttggtc a诶cagggtag cgttccaatc	6120
gtaccttcttc acacccttga tcaccacctc ggtgatcttg tcgatgtggt agttggagtc	6180
cttgcgatc aggatctcct tctcggaaagc gaagccaccc atagccgaca ggtaggcacc	6240
agtggAACCC tttggcacct gcagcctcag gatgaacttc ctggagccga aagcggacag	6300
cctctcgag gacagggagg tggacatgta accttgtcc tccttcatgg tggcaggaa	6360
cttctcctcc attccttca gggatggcag tggcggaa atctggtaac cgaactcggc	6420
cataccgcac caccgttaca cggtgatgtt ctctggatc ggctgcttct ccagagcctc	6480
ggagatgttc ttgatctggg tgtccagtt ctcgttgcg gagccaccct ggttccgcag	6540
gtatcggtt atctgcttgt agtcctgcct agcgttagccg tccagggcct ccctctgtgg	6600
gtcggtcagg ttcttagccc aaccctcgta gttttcatg ccccacctgt gagcctcggc	6660
gttgcgtcg ttcttgaagt ccagggactt cttcaggta ccctggatct gcaggcactc	6720
gtaacccttc ttaccacacct tggagatgtt gtccacgtgc agcacgtac cgatgtcgat	6780
cagcatctt tactcggtt tggcaggat cacaccagcc ttggcggga tggcggagcc	6840
cttgcggat ggcacggta cttggaggat gatctctcc ttggaggaca cgttctgagc	6900
agtcaagggtt gtgtccagggt aggagtcgaa cttgatgtcc ttggccaggaa actgctcctt	6960
gaactggcc tgcacgtcg tggatgtt gttccatcg gtcagtggt tggccttgc	7020
gatgggtggat ggctccacgt tcttgcgtt cacgtggag gaggacagggt tggccttgc	7080
gaacatctt tcgatctcct tcaggcctt gatctcgatc tcgaaggagc cagccatgt	7140
gaagggtgtc tccttgcgtt tcttgcgtt gtcgttgc ttgtccaggaa aattattcat	7200
acgcgtttc tcggtcacgg tcagcttcca ctcccttcc ttctccttgc cccactcctt	7260
ggccttctcc ttgtcccttca tgaagtccctc ggtgttggt gttccatcgatgtccat	7320

<210> 14
<211> 500
<212> DNA
<213> Zea may

```
<220>
<221> misc_feature
<222> (127)..(127)
<223> n=any nucleotide
```

<220>
 <221> misc_feature
 <222> (131)..(131)
 <223> n=any nucleotide

<220>
 <221> misc_feature
 <222> (156)..(156)
 <223> n=any nucleotide

<220>
 <221> misc_feature
 <222> (193)..(193)
 <223> n=any nucleotide

<220>
 <221> misc_feature
 <222> (289)..(289)
 <223> n=any nucleotide

<220>
 <221> misc_feature
 <222> (463)..(463)
 <223> n=any nucleotide

<220>
 <221> misc_feature
 <222> (486)..(486)
 <223> n=any nucleotide

<400> 14
 ggccgaattt catactcatt atatacgatg atacaccatc atacatagtg acatgacata 60
 caattaaaag cagagatata gaaagagctt atgggagatg gtagagttc atagagataa 120
 aattctntat ntacaattac ctatgttaaa tatggngtga caacatggaa aacattgtac 180
 cgaagctcac cgntgaaaat ggccttacaa aactgaaaag aagatgtcac ttgttgtgaa 240
 gctcaccgat gaaactggcc taacaaaact gaaacaaaaa gatctcatnt cacttgttct 300
 gaagctcacc actaagaatg accttacaaa actgaaaacaa aaaagatgtc cttgttctaa 360
 agctcaccac tgagaaaggc cttacaaaac taaaacaaaaaaa aaaatttgc acatgtcttg 420
 aagctcacca ctgagaatgg cttacaaaac ctgacaaaaa atntgtcatt tggtttagct 480
 ttgtcnctct actttaagga 500

<210> 15
 <211> 604
 <212> DNA
 <213> Zea mays

<400> 15

tgaataagat aaatggtcaa agtttttaa aaaaatcaaa catgtcatat atctgtaac	60
ggagggttga ttacagaatg tgcgacgtac acgctaccca ataaaataca acaaacattt	120
ggtactggaa ttttgcctt tgcgcataga atccaataca taaaataagt ataggcagcg	180
aaccaaacac gtcccaagtt ttataatttg taaagaaaat gacagcattt aaatatgata	240
acacaataat taaccagcgg gtaaggtag tttcgttga gcactgttc ggtttagaat	300
cgctggacct gcgtgttat gagacacagc ggtagcagt tggaagagat gattggcta	360
gctagcttga gcgattcagt catcaacccc aatattttc cattgtcga tgcacattt	420
tctataaccac gacgacacaa cgtgaacctc gtgcagctt taaaataca gccagtttg	480
atccatctac ctgtctgtca gacgtgctac agcctacagt ttagtgactg ctgcctataa	540
aatggctggc tgctggagca aagccaaacc aatcagatag agagcatagt cgatccatgg	600
catg	604

<210> 16	
<211> 25	
<212> DNA	
<213> Artificial	
<220>	
<223> oligonucleotide primer GV22	
<400> 16	
gctgtgtgag agtagtagtg gcttc	25

<210> 17	
<211> 24	
<212> DNA	
<213> Artificial	
<220>	
<223> oligonucleotide primer GV23	
<400> 17	
cacaaggctg gctgacagca tcgt	24

<210> 18	
<211> 26	
<212> DNA	
<213> Artificial	
<220>	
<223> oligonucleotide primer GV24	
<400> 18	
gctcacgaga ggcagcgcgc gtcgtc	26

<210> 19
<211> 21
<212> DNA
<213> Artificial

<220>
<223> oligonucleotide primer GVK25

<400> 19
gtaaaagttg tggcttcccg g 21

<210> 20
<211> 25
<212> DNA
<213> Artificial

<220>
<223> oligonucleotide primer GVK26

<400> 20
ccgcgcgttg cccgacagct taaac 25

<210> 21
<211> 27
<212> DNA
<213> Artificial

<220>
<223> oligonucleotide primer GVK31

<400> 21
gggttggatc gcgcataatca cctttc 27

<210> 22
<211> 24
<212> DNA
<213> Artificial

<220>
<223> oligonucleotide primer GVK32

<400> 22
ccgcctggtg tcatcaagac agag 24

<210> 23
<211> 26
<212> DNA
<213> Artificial

<220>
<223> oligonucleotide primer GVK33

<400> 23	
gctcaaggaa aacaacccat acccgc	26
<210> 24	
<211> 24	
<212> DNA	
<213> Artificial	
<220>	
<223> oligonucleotide primer GVK38	
<400> 24	
ggcgccagtc cgggcaacaa atac	24
<210> 25	
<211> 25	
<212> DNA	
<213> Artificial	
<220>	
<223> oligonucleotide primer GVK39	
<400> 25	
gggctctggc ccccctatat acaac	25
<210> 26	
<211> 27	
<212> DNA	
<213> Artificial	
<220>	
<223> oligonucleotide primer GVK45	
<400> 26	
cgggatcccg gctttctgca ctggacg	27
<210> 27	
<211> 15	
<212> DNA	
<213> Artificial	
<220>	
<223> oligonucleotide primer MDB285	
<220>	
<221> misc_feature	
<222> (1)..(1)	
<223> n=any nucleotide	
<400> 27	
ntcgastwts gwgtt	15

<210> 28
 <211> 16
 <212> DNA
 <213> Artificial

 <220>
 <223> oligonucleotide primer MDB286
 <220>
 <221> misc_feature
 <222> (1)..(1)
 <223> n=any nucleotide

 <220>
 <221> misc_feature
 <222> (11)..(11)
 <223> n=any nucleotide

 <400> 28
 ngtcgaswga nawgaa

16

<210> 29
 <211> 16
 <212> DNA
 <213> Artificial

 <220>
 <223> oligonucleotide primer MDB363
 <220>
 <221> misc_feature
 <222> (5)..(5)
 <223> n=any nucleotide

 <220>
 <221> misc_feature
 <222> (10)..(10)
 <223> n=any nucleotide

<400> 29
 sggntgawn taawac

16

<210> 30
 <211> 15
 <212> DNA
 <213> Artificial

 <220>
 <223> oligonucleotide primer MDB364
 <220>
 <221> misc_feature
 <222> (5)..(5)
 <223> n=any nucleotide

<400> 30
 sscgnaawtt catwc

15

<210> 31
<211> 15
<212> DNA
<213> Artificial

<220>
<223> oligonucleotide primer MDB552

<220>
<221> misc_feature
<222> (1)..(1)
<223> n=any nucleotide

<400> 31
ngtcsagwaw scatt

15

<210> 32
<211> 16
<212> DNA
<213> Artificial

<220>
<223> oligonucleotide primer MDB556

<220>
<221> misc_feature
<222> (2)..(2)
<223> n=any nucleotide

<220>
<221> misc_feature
<222> (6)..(6)
<223> n=any nucleotide

<400> 32
cngasnagwt wgcata

16